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URS

May 23, 2014

Ms. Joyel Dhieux
On-Scene Coordinator
Preparedness, Assessment and Emergency Response
U.S. Environmental Protection Agency (EPA)
Region VIII (8EPR-SA)
1595 Wynkoop Street
Denver, CO 80202

Subject: Draft Stage II Removal Action Work Plan
Moline Street PCB Site, Aurora, Colorado

Dear Joyel:

Enclosed are two copies of the Draft Stage II Removal Action Work Plan for the Moline Street PCB Site in Aurora, Colorado. This Work Plan was prepared by URS Corporation (URS) on behalf of The Dow Chemical Company (TDCC). Attachments to the Work Plan include the Technical Memorandum, Removal Action Specifications and Construction Drawings, and a Transportation and Disposal Plan.

If you have questions regarding the Work Plan, please contact me at 303-796-4672, Sarah Lave at 303-740-2680, or Tom Gieck at 970-256-8889.

Sincerely,

Karen M. Maestas

Karen Maestas, P.E.
URS Project Manager

Enclosures

cc: Tom Gieck, Remediation Leader, TDCC Representative
Sarah Lave, URS Deputy Project Manager
Louis Hard, HiTec Plastics, Inc.
Susan Borden, LT Environmental
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Dhieux, Joyel

From: Dhieux, Joyel
Sent: Thursday, June 12, 2014 3:47 PM
To: gieckte@dow.com; Lave, Sarah
Cc: louishard@comcast.net
Subject: Moline Street PCB Site Stage II Workplan

Hi Tom and Sarah,

We have no additional comments on the Stage II Workplan for the Moline Street PCB Site. I'm glad to hear everything is still on schedule and am looking forward to getting started. Please keep me posted on the bid-selection and pre-construction meeting. If I'm available, I'd like to attend the pre-construction meeting.

Thanks,

Joyel

Joyel Dhieux
Federal On-Scene Coordinator
U.S. Environmental Protection Agency Region 8
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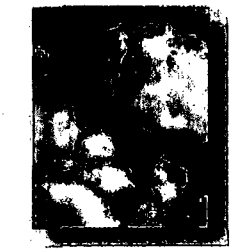

Moline Street PCB Site

Stage II Removal Action Work Plan

Draft

URS

May 2014

TABLE OF CONTENTS

Section 1 Introduction 1-1

Section 2 Site Background and History 2-1

2.1 Site Description 2-1
2.2 Site Operational History 2-1
2.3 Investigation and Regulatory History 2-2
2.4 Summary of Stage I Investigation Activities and Results 2-3
2.5 Summary of Site Characteristics and Contamination 2-4
2.5.1 Geology and Hydrogeology 2-4
2.5.2 Public Water Supply Wells 2-4
2.5.3 Nature and Extent of Contamination 2-5

Section 3 Project Key Design Requirements 3-1

3.1 Removal Action Objectives and ARARs 3-1
3.2 Additional Project Requirements 3-2

Section 4 Field Activities 4-1

4.1 Overview 4-1
4.2 Preparation and Coordination 4-2
4.2.1 Permitting 4-2
4.2.2 Utility Clearance 4-2
4.2.3 Procurement 4-2
4.3 Demolition and Excavation 4-3
4.3.1 Mobilization and Work Area Preparation 4-3
4.3.2 Building Cleaning and Wipe Sampling 4-3
4.3.3 Site Management 4-3
4.3.4 Monitoring Well Abandonment 4-4
4.3.5 Demolition Activities 4-4
4.3.6 Removal and Excavation of PCB-Contaminated Concrete and Soils 4-4
4.3.7 Soil Stock Piling and Disposal 4-6
4.3.8 Air Monitoring and Dust Suppression 4-6
4.3.9 Post-Excavation Surveying 4-6
4.3.10 Backfill and Compaction 4-6
4.3.11 Surface Restoration 4-7
4.3.12 Post-Removal Action Wipe Sampling 4-7
4.3.13 Equipment and Materials Decontamination 4-7
4.4 Health and Safety Requirements 4-7
4.4.1 General Work Zone Safety 4-8
4.4.2 Contamination-Related Work Zones 4-8
4.4.3 Summary of Potential Hazards 4-9
4.5 Transportation and Disposal 4-9
4.5.1 Disposal Facilities 4-10

TABLE OF CONTENTS

4.5.2 Notifications and Agency Coordination 4-10
4.6 Demobilization 4-11

Section 5 Confirmation Sampling 5-1

5.1 Concrete Confirmation Sampling 5-1
5.2 Soil Confirmation Sampling 5-1
5.3 Wipe Confirmation Sampling 5-1
5.4 Sample Labeling 5-2
5.5 Analytical Testing 5-3

Section 6 Documentation and Reporting 6-1

6.1 General Field Documentation 6-1
6.2 Waste Tracking 6-1
6.3 Remedy Complete Acheivement 6-2
6.4 Removal Action Completion Report 6-2

Section 7 Project Schedule 7-1

Section 8 References 8-1

LIST OF TABLES

Table 1 Summary of Applicable or Relevant and Appropriate Requirements

LIST OF FIGURES

Figure 1 Site Location

Figure 2 Site Vicinity

Figure 3 Building Identification and Square Footage

Figure 4 Anticipated Removal and Demolition Areas

LIST OF APPENDICES

Appendix A Stage I Summary Technical Memorandum

Appendix B Removal Action Specifications and Construction Drawings

Appendix C Transportation and Disposal Plan

List of Acronyms

ACM	asbestos containing material
Alpine	Alpine Remediation, Inc.
amsl	above mean sea level
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
BMP	Best Management Practice
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm^2	square centimeters
CON	concrete
CRZ	Contaminant Reduction Zone
DEB	other debris
DPT	direct push technology (drilling)
EPA	United States Environmental Protection Agency
EXC	excavation
EZ	Exclusion Zone
F	floor
HASP	Health and Safety Plan
Herron	Herron Enterprises USA, Inc.
Hi-Tec	Hi-Tec Plastics, Inc.
IDW	investigative derived waste
LTE	LT Environmental, Inc.
$\mu g/100cm^2$	micrograms per one hundred square centimeters
mg/kg	milligrams per kilogram
NAD 83	North American Datum of 1983
NAVD 88	North American Vertical Datum of 1988
NGVD 27	National Geodetic Vertical Datum of 1927
NGVD 29	National Geodetic Vertical Datum of 1929
NPL	National Priority List
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PPE	personal protection equipment

List of Acronyms

ppm	parts per million
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
SEM	Strategic Environmental Management, LLC
SEO	Office of the State Engineer
Site	Moline Street PCB Site
SOP	Standard Operating Procedure
SS	stockpile
Stage I Work Plan	Revised Draft Investigation and Removal Action Work Plan
Stage II Work Plan	Stage II Removal Action Work Plan
SVOC	semi-volatile organic compound
SZ	Support Zone
TAT	turnaround times
TCLP	Toxicity Characteristic Leaching Procedure
TDCC	The Dow Chemical Company
TSCA	Toxic Substances Control Act
UNCC	Utility Notification Center of Colorado
URS	URS Corporation
VOC	volatile organic compound
W	sidewall
WP	wipe sample
yd^3	cubic yards

URS Corporation (URS) prepared this Stage II Removal Action Work Plan (Stage II Work Plan) on behalf of The Dow Chemical Company (TDCC) to present the polychlorinated biphenyl (PCB) removal action approach for 3555 Moline Street in Aurora, Colorado, also known as the Moline Street PCB Site (Site) (SEM 2012). The Administrative Settlement Agreement and Order on Consent (Settlement Agreement) for the Site was effective January 30, 2014 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (reference CERCLA Docket No. CERCLA-08-2014-0002). TDCC notified the U.S. Environmental Protection Agency (EPA) that URS was their selected contractor on January 31, 2014 and URS prepared a *Revised Draft Investigation and Removal Action Work Plan* (Stage I Work Plan), which URS submitted to EPA on February 28, 2014 (URS 2014).

Stage I field activities were conducted in February and March 2014 and Stage I activities, results, and associated conclusions were summarized in a technical memorandum submitted to EPA on May 1, 2014. These results and conclusions were used in conjunction with historical results to delineate the nature and extent of soil and concrete contamination and to prepare this Stage II Work Plan.

This Stage II Work Plan describes the removal action tasks and activities associated with building demolition, soil excavation, sampling, backfilling, and restoration of the former magnesium extrusion facility located at the Site (Figure 1). The selected remedy includes removal and offsite disposal of accessible soil and concrete containing elevated levels of PCBs, with limited demolition of an outer building structure. The main building will remain in place. This Stage II Work Plan summarizes Site conditions and removal areas, and details the removal action approach. It is presented in seven sections:

- Section 1 Introduction – includes work plan organization.
- Section 2 Site Background and Conditions – includes a brief Site description, a summary of the Site operational and investigative or regulatory history, and a description of Site conditions and extent of contamination. This section also briefly summarizes results from Stage I characterization activities.
- Section 3 Project Key Design Requirements– describes the remedial action objectives and project key design requirements.
- Section 4 Field Activities – describes the project approach and removal action tasks.
- Section 5 Confirmation Sampling – describes the methods and types of confirmation sampling.
- Section 6 Documentation and Reporting – outlines the information to be summarized in a report following the completion of field activities.
- Section 7 Project Schedule – includes information on timing of primary tasks.
- Section 8 References – lists the references.

The following appendices from the Stage I Work Plan (URS 2014) are applicable to Stage II activities without revision and, therefore, are not duplicated as attachments to this Stage II Work Plan:

- Site Health and Safety Plan (HASP) (Appendix A, URS 2014)

- Standard Operating Procedures (SOPs) (Appendix B, URS 2014)
- Quality Assurance Project Plan (QAPP) (Appendix C, URS 2014)

The basis for and details of Stage II removal action activities are included in the following appendices:

- Appendix A Stage I Summary Technical Memorandum
- Appendix B Removal Action Specifications and Construction Drawings
- Appendix C Transportation and Disposal Plan

This section describes the Site, operational history, the investigative and regulatory history, Site characteristics and conditions, and the regulatory path under which the Site environmental work is and has been conducted. This section provides background and context to later sections of this document and is not meant to be comprehensive. The Stage I Work Plan includes a list of environmental investigations and reports where additional information can be found.

2.1 SITE DESCRIPTION

The Site is located in Aurora, Colorado near the southwest corner of the intersection of Smith Road and Moline Street (Figure 1). The Site covers approximately 1.8 acres and includes a building with an address of 3555 Moline Street, as shown in Figure 2. The Site has an elevation of approximately 5,300 feet above mean sea level (amsl) and is relatively flat, sloping slightly to the southwest toward Sand Creek located approximately 2,000 feet south of the Site.

Figure 2 shows the Site vicinity; where the Site is part of a larger property, which includes two parcels with a building at 3555 Moline Street (the Site) and a northern building with an address of 11380 East Smith Road with a combined property size of 5.7 acres. The property was developed from 1960 through 1972 and included the two buildings, paved asphalt parking lots to the north and east, and paved concrete storage areas between the two buildings. The northern building (11380 East Smith Road) is currently occupied by Hi-Tec Plastics, Inc. (Hi-Tec), which operates a plastics recycling operation. The Site building (3555 Moline Street) has been vacant since 2009 and was purchased on February 14, 2014 by Hi-Tec as the Bona Fide Prospective Purchaser. Figure 3 identifies individual sections of, and attachments to, the Site building with their respective surface areas.

The surrounding properties include commercial and light industrial uses. A landfill is located immediately adjacent to the west of the Site and contains mounded surface features; additionally, the Denver County Jail is located west of the landfill. A food distribution facility resides to the south across a vacant field. Several local businesses and warehouses exist east of the Site across Moline Street. A railroad right-of-way parallels Smith Road north of the Site.

2.2 SITE OPERATIONAL HISTORY

TDCC began constructing the facility in 1969 which included the extrusion building (3555 Moline St.), and in 1972 a machine shop (11380 East Smith Road) was constructed. The magnesium extrusion facility processed approximately 15 million pounds of magnesium per year in the late 1990s, which occurred within both the Site building and the building to the north (11380 East Smith Road). Raw magnesium materials (i.e., ingots and billets) were brought in by truck and railcar and were stored in the yard area and/or warehouse area. Ingots were extruded through a 4,200-ton press to form poles between 7 and 9 inches in diameter, which were then cut into billets and extruded through a 1,800-ton press into various shapes and profiles. These processes were dry machining, as no cutting fluids were used. The facility operated year-round for 24 hours per day (URS 1999).

In July 1999, Timminco Corporation assumed the lease, purchased the operating assets, and continued operations until they transferred their operations to Mexico in August 2009. The property was purchased by Aurora Smith Road Ventures, LLC, c/o David Goodell in 2007 (LTE

2013). The Site was unoccupied from 2009 until 2011 when Hi-Tec leased the property to operate a plastics recycling operation.

TDCC identified that the several chemicals had been historically used to operate and clean the press including hydraulic oils and solvents (TDCC 1999). PCBs were present within hydraulic oils until 1979 when the United States government banned their manufacturing, processing, distribution, and use. At least two presses were operated (a 500-ton press and an 1800-ton press), and at least one pit was used for wastes from the press(es), as shown on Figure 3.

2.3 INVESTIGATION AND REGULATORY HISTORY

Several environmental investigations have been conducted at the Site. Numerous Phase I and Phase II assessments were conducted on behalf of different companies related to property transfers. In 2014, the Site was placed under the "Time-Critical Removal Action" category by EPA and has a Superfund Site ID of #A898, but is not on the National Priorities List (NPL). The investigative and regulatory history is detailed in the Stage I Work Plan (URS 2014), and summarized as follows:

- Several environmental consultants conducted a number of Phase I and Phase II investigations at the Site between 1999 and 2013.
- Based on findings from a Phase II investigation that LT Environmental, Inc. (LTE) conducted in March 2013 (LTE 2013), EPA contacted TDCC in mid-2013 regarding the Site and a meeting was held on site August 14, 2013 between EPA, TDCC, Hi-Tec, URS, and LTE.
- EPA, TDCC, Hi-Tec, and URS participated in multiple conference calls and meetings between August 2013 and October 2013 to scope the PCB removal action.
- URS submitted the *Draft Investigation and Removal Action Work Plan* to EPA on October 28, 2013 (URS 2013), after which negotiations took place between EPA, Hi-Tec, and TDCC in preparation of *The Administrative Settlement Agreement and Order on Consent* (Settlement Agreement), which was executed by EPA on January 30, 2014.
- EPA gave TDCC's contractor, URS, verbal approval on February 13, 2014 to commence with the Stage I investigation activities and URS submitted the Stage I Work Plan on February 28, 2014 (URS 2014), which EPA approved on March 24, 2014.

The Stage I Work Plan addressed a portion of the work outlined for TDCC in the Settlement Agreement, specifically to investigate PCBs in concrete and soil. Per the Settlement Agreement, the actions to be implemented at the Site include:

- Additional sampling of soils, concrete and building structure to better determine the scope of the removal action;
- Demolition of outer building structures;
- Excavation of contaminated concrete and soils underlying outbuildings; and
- Removal of concrete via grinding, where and if necessary.

The removal action objective specified achieving clean up levels of 25 parts per million (ppm), or 25 milligrams per kilogram (mg/kg), within the top foot of soil and/or concrete, and a cleanup

level of 100 ppm in soil deeper than 1 foot. The cleanup levels are described further in Section 3.1. The Stage I Work Plan specified conducting the work in two stages as follows:

- Stage I includes additional Site investigation activities to better understand the nature and extent of contamination, which will assist in planning the removal action.
- Stage II includes demolition, excavation, backfilling, and restoration activities.

2.4 SUMMARY OF STAGE I INVESTIGATION ACTIVITIES AND RESULTS

URS conducted Stage I investigation activities in February and March of 2014. URS summarized the Stage I activities, results, and associated conclusions in a technical memorandum submitted to EPA on May 1, 2014, which is included as Appendix A to this Work Plan. Stage I investigation activities included the following components:

- URS contracted Herron Enterprises USA, Inc. (Herron) to conduct an asbestos building inspection, which Herron performed on February 24, 2014
- URS collected 32 wipe samples from building and floor surfaces on February 24, 2014
- URS contracted Alpine Remediation, Inc. (Alpine) to perform concrete coring and direct push technology (DPT) drilling services, which took place from March 17 to March 20, 2014. This involved sample collection from 52 investigation locations, which included:
    - Four (4) grab sample locations (e.g., shallow samples retrieved using hand tools) outside and adjacent to the southern wall of the building;
    - Two (2) DPT drilled locations outside and north of the building; and
    - Forty-six (46) DPT locations drilled inside of the building.

URS utilized a field test kit to analyze wipe samples and soil samples for the presence of organic chloride, from which PCB-1242 concentrations were estimated. URS submitted confirmation samples to TestAmerica (a fixed analytical laboratory in Arvada, CO) including select wipe samples, soil samples, and concrete cores. The Stage I results and findings are detailed in Appendix A; however, notable findings from the Stage I investigation include:

- Wipe sample results indicate that portions of the building exceed the PCB cleanup threshold of 10 micrograms per one hundred square centimeters ($\mu g/100cm^2$) (EPA 1990). URS anticipates that a majority of the building interior surfaces (e.g., walls, floors, and ceiling) will need to be cleaned to remove PCBs during removal action activities (see Subsection 4.3.11).
- Gray to black staining was observed in soil from 23 of the 52 borings, with varying heavy-range hydrocarbon odors observed in a portion of these.
- Soil results included 87 field test kit measurements and 20 confirmation samples for laboratory analysis. Two soil samples had detected concentrations exceeding respective cleanup levels and six soil samples had detection limits above respective cleanup levels. Overall, PCB concentrations in soil exceeded cleanup levels at 8 of the soil boring locations in portions of Buildings C, D, and F, but were below cleanup levels at the remaining 44 soil boring locations (Figure 4).

- Concrete testing included 7 field test kit measurements and 40 core samples for fixed analytical laboratory analysis. PCBs were detected in each of the 40 concrete samples submitted for laboratory analysis, with results from 8 locations exceeding respective cleanup levels in Buildings C and D exceeded the cleanup level of 25 ppm.

Stage I results were used in conjunction with historical results to delineate the nature and extent of soil and concrete contamination, as summarized in Section 2.5.3 and detailed in Appendix A.

2.5 SUMMARY OF SITE CHARACTERISTICS AND CONTAMINATION

This subsection summarizes geological and hydrogeological characteristics and the current understanding of the nature and extent of contamination at 3555 Moline Street.

2.5.1 Geology and Hydrogeology

This section summarizes the geology and hydrogeology of the Site, as described in the voluntary cleanup program application (SEM 2010). The Site is located in the Great Plains physiographic province. The soil survey for the vicinity indicates that it is located within an area of the Ascalon-Vona-Truckton association, described as "Nearly level to strongly sloping, well drained and somewhat excessively drained, loamy and sandy soils formed in wind-laid deposits; on uplands."

Underlying the Site soils are sediments of the Quaternary wind deposits beneath which are sediments of the Tertiary-Cretaceous Denver Formation and Lower Part of the Dawson Arkose sediments (SEM 2010). Wind-blown sediments typically consist of fine-grained sandstones, siltstones and shales, or claystones deposited in a wind-laid environment. The Denver and Dawson Formations generally consist of shales and claystones with interbedded sandstones and siltstones. The near surface (upper 35 feet) stratigraphy at the Site consists of Quaternary alluvial deposits and fluvial deposits of the Tertiary Denver Formation. The total thickness of these Quaternary deposits beneath the Site ranges from 17 to 35 feet. In general, the upper 5 to 6 feet of soil was classified during Stage I drilling activities as relatively plastic silts and clays, which were underlain by sands with little fine-grained material (Appendix A).

The upper units of the aquifer system include the Dawson, Denver, and Arapahoe members, which are typically unconfined or semi-confined water-bearing zones. The stratigraphically lowest member of the aquifer system is the Cretaceous Fox Hills Formation, which is a confined water-bearing unit in much of the Denver metropolitan area. The water-bearing zone at the Site represents the water table aquifer and occurs under unconfined conditions. The base of the uppermost aquifer is the Denver Formation claystone. The claystones separate the uppermost aquifer from deeper bedrock aquifers in the Denver Basin (URS 1999).

Shallow groundwater flows towards the northwest, although the topography slopes to the southwest. Water levels measured in Site wells indicate the depth to groundwater varies from approximately 13 to 16 feet below ground surface (bgs) (LTE 2013, URS 1999).

2.5.2 Public Water Supply Wells

The Site currently receives drinking water from the public water supply and there are no future plans to install a drinking water well at the Site. The Environmental Data Resources, Inc. report published with the October 12, 2009 Phase I report provides a detailed list of 53 water wells

located within one-half mile of the Site and none of these wells are used for supplying drinking water. There are no Public Water Supply Wells within a mile of the Site (SEM 2010).

2.5.3 Nature and Extent of Contamination

The previous investigations included analyses for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, total petroleum hydrocarbons, and PCBs in Site soil and groundwater. However, prior to the Stage I investigation, only two of the more recent investigations (since 2010) included PCB analyses.

Historically, the highest PCB concentration in soil (9,240 mg/kg) was detected in the Skimmer Room (Building C) at a depth of 1.5 to 2.5 feet at location SB-2 in 2012. Stage I results were used in conjunction with historical results to delineate the nature and extent of soil and concrete contamination, as detailed in Appendix A. Figure 4 presents the estimated horizontal and vertical extents of soil and concrete contamination. In areas where analytical or field test kit results were not obtained (i.e., near portions of the 1800-ton press pit), the removal area was delineated based on a conceptual understanding of potential releases or contamination sources. In summary, Stage I results indicate that soil beneath portions of Buildings B, C, D, and F exceed cleanup levels and require removal, while soil beneath Buildings A, E, H, and I, as well as outside of the warehouse, meets cleanup levels and therefore will not need to be addressed during the removal action.

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This section describes the project key design requirements. The removal action approach is overviewed in Section 4 and detailed in the *Removal Action Specifications and Construction Drawings*, as presented in Appendix B.

3.1 REMOVAL ACTION OBJECTIVES AND ARARS

Per the Settlement Agreement, the removal action for this Site specifically focuses on PCBs in soil. PCB cleanup levels have been established as follows:

- 25 mg/kg (ppm) for surface soils (uppermost foot of soil);
- 100 mg/kg (or ppm) for subsurface soils (deeper than 12 inches).

Applicable or Relevant and Appropriate Requirements (ARARs) were identified and in Appendix A of the Settlement Agreement, and are also presented in Table 1 of this document.

Accessible PCB contaminated concrete and soil will be removed to achieve the cleanup levels; however, soils impacted with PCBs would be left in place if:

(1) Groundwater is encountered before the vertical extent of contamination is defined;

(2) PCB contamination extends deeper than 3 feet bgs along the western edge of Building B;

(3) PCB contaminated soils cannot be safely removed from beneath Building D without compromising building integrity; and/or

(4) The foundation to Building D is contaminated.

In the event that PCB concentrations remain in place above clean up levels at completion of the removal action, the soils and/or foundation will be capped (with concrete) to prevent human exposure and to reduce PCB migration from infiltration and/or wind transport. Additional post-removal site controls, such as covenants governing future land use or soil disturbance may be required based on the extent of contamination left in place.

As stated on Page 6 in Appendix A of the Settlement Agreement, the following remedial action objective (RAO) has been established for the 3555 Moline Street property (the Site):

> *The goal of the removal action is to achieve a clean up level of 25 ppm at the surface and within the top twelve inches. Below the top twelve inches, the goal of the removal action is to achieve a clean up level of 100 ppm. All accessible contaminated soils and concrete at the Site will be replaced with clean soils and capped with concrete or asphalt.*

Per the Settlement Agreement, the proposed action is intended to "reduce human exposure to the hazardous substances by (1) removing the bulk of the PCB contamination and (2) reducing the mobility and transport of any remaining PCB contamination with the installation of a concrete cap." The following key elements were identified:

> *(1) additional sampling of the soils, concrete and building structure to better determine the scope of the removal action; (2) demolition of outer building structures including Buildings A, C and all or a portion of Building B (See Appendix 1, Figure 2); (3) excavation of contaminated concrete and soils underlying Buildings A, B and C, as determined necessary, to achieve appropriate clean up levels; (4) removal of concrete via abrasive grinding, where appropriate; (5) cleaning of any PCB contamination remaining on the walls of the building structure; (6) proper disposal of PCB-contaminated wastes in*

a regulated landfill; and (7) replacement of the concrete to provide a cap for any PCB contamination left in place. The removal of PCB contamination in Building D will be determined following additional sampling and assessment.

3.2 ADDITIONAL PROJECT REQUIREMENTS

In addition to the ARARs presented in Table 1, several additional project requirements were reviewed and considered for the preparation of this Stage II Work Plan. A summary of these requirements is listed below:

- The Settlement Agreement and associated cleanup goals.
- Cleaning building surfaces to the PCB cleanup threshold of 10 $\mu g/100cm^2$ per EPA guidance for PCB remedial actions (EPA 1990).
- Procedures and requirements associated with CERCLA and Toxic Substances Control Act (TSCA).
- Rule 16 of the Colorado Office of the State Engineer (SEO) "Water Well Construction Rules" (2 CCR 402-2, SEO 2005) for abandoning monitoring wells.
- Preservation of the main building (Buildings D through I), even if that means leaving some contamination in place.
- Covering remaining impacted soil with 12" of clean soil and/or concrete (i.e., PCB-contaminated media cannot remain in potential areas of exposure).
- The focus of the soil removal action is limited only to PCBs in the vadose zone (i.e., other contaminants may remain in place and groundwater contamination will not be addressed).
- Field work is to be conducted safely, per Occupational Safety and Health Administration (OSHA) requirements, with as little disruption as possible to Hi-Tec's operations.
- Materials containing PCBs are to be safely transported to approved disposal locations in accordance with Department of Transportation regulations.

This section provides an overview of the project approach and field activities associated with the removal of PCB-contaminated concrete and soil at the Site building. Appendix B provides the plans and specifications.

4.1 OVERVIEW

As described in Subsection 3.1, the removal action focus is to protect human health and the environment from potential exposure to PCBs at the surface and in subsurface soils beneath and in the vicinity of the Site building. URS delineated the anticipated removal and demolition areas from the Stage I investigation results, as shown in Figure 4. Anticipated excavation extents and volumes and the anticipated demolition are detailed in Appendix B.

The following Stage II tasks are anticipated, and are described in general in Section 4:

- Issue bid documents and the Stage II Work Plan;
- EPA approval of the Stage II Work Plan;
- Mobilize to the Site - prepare Site and stage materials;
- Clear outdoor material near Buildings B and C;
- Abandon monitoring wells
- Building cleaning and confirmation wipe sampling
- Hang plastic sheeting between Buildings D and E, and Buildings E and F
- Remove Building C
- Sawcut concrete in delineated areas and collect confirmation samples
- Demolish and dispose of concrete
- Excavate and dispose of contaminated soils and collect confirmation samples
- Upon achieving soil concentrations below cleanup levels along the sidewalls and base of the excavation, survey excavations
- Backfill and compact (with compaction testing) excavation areas
- Place concrete over excavated areas and survey final grade
- Conduct final wipe sampling of Buildings B, D, and F (potential cleaning)
- Restore Site and demobilize

Sampling and data collection methods to be used during the removal action activities are described in the Quality Assurance Project Plan (QAPP) and standard operating procedures (SOPs) included as Appendix B and C, respectively, to the Stage I Work Plan (URS 2014). The SOPs also describe the sample management and field documentation requirements pertinent to the removal action.

4.2 PREPARATION AND COORDINATION

Prior to conducting Stage II activities, URS will prepare for field activities by obtaining the appropriate permits or notifications, clearing utilities, procuring subcontractor services, and staging materials.

4.2.1 Permitting

As this removal action will occur under CERCLA, no federal, state, or local permits are required for work conducted on Site per the National Contingency Plan in 40 Code of Federal Regulations (CFR) §300.400(e). The appropriate disposal facilities have been identified and waste profiles initiated (Subsection 4.5). As described in Subsection 4.5.2, relevant local and federal agencies will be identified for the transportation and disposal of waste and debris.

4.2.2 Utility Clearance

Prior to commencing the Stage I drilling activities, the general utility locations were noted. In general, there are few underground utilities below the Site building. Utility locating will be conducted again prior to beginning Stage II excavation work and suspected underground utilities will be marked on the ground with color-coded marking paint in accordance with American Public Works Association standards (red for electrical line, blue for water line, green for sanitary/storm sewer line, orange for telecommunications, yellow for gas line, etc.).

URS or its Subcontractor will notify the Utility Notification Center of Colorado (UNCC) several days prior to conducting intrusive work and will indicate the areas requiring clearance. The UNCC will notify and schedule a meeting with various utility companies to clear areas selected for intrusive fieldwork. Following the UNCC meeting, URS or its Subcontractor will arrange for a private utility locator to identify additional private and unmarked lines in the area. Utility clearance activities will be documented in a field logbook.

Based on the private utility locating conducted prior to commencing the Stage I drilling activities, no live underground utilities are anticipated to be encountered. The only underground line suspected in the removal area footprint is a decommissioned power line with accompanying compressed air lines in the same trench just east of the former press pit. If unexpected utilities are encountered during excavation, soil in the area may be excavated with smaller equipment, air knifing, or hand tools.

4.2.3 Procurement

Stage II activities will involve the procurement of subcontractor services and equipment for the following tasks, but are not limited to:

- Surveying and utility locating;
- Analytical laboratory;
- Field trailer and generators;
- Building decommissioning and demolition;
- Concrete removal;
- Soil excavation and backfilling; and

- Waste transportation and disposal facilities.

4.3 DEMOLITION AND EXCAVATION

This subsection generally discusses Stage II tasks and activities at a conceptual level with specifics detailed in Appendix B. Stage II tasks generally include building and concrete demolition, excavation of contaminated soil, hauling and disposal of waste, backfilling the excavation, and Site restoration.

4.3.1 Mobilization and Work Area Preparation

Upon EPA's approval of this Stage II Work Plan, URS will schedule subcontractor(s), mobilize to the Site, perform required utility locates, place temporary site security fencing, and stage the field trailer(s). Other tasks include:

- Staging equipment and materials;
- Setting up work zones (See Section 4.4), stockpiles areas, and investigation derived waste (IDW) storage;
- Hanging plastic sheeting for dust containment within building partitions (Figure 4);
- Installing stormwater pollution protection measures;
- Constructing required decontamination (personnel and equipment/vehicles) areas; and
- Setting up traffic control devices such as barricades, cones, and signage to manage pedestrian and vehicular traffic.

4.3.2 Building Cleaning and Wipe Sampling

Stage I wipe sampling results indicate that dust on the interior walls in a portion of the building exceed the PCB cleanup threshold of 10 $\mu g/100cm^2$ (EPA 1990) and that a majority of the building requires cleaning to remove the PCB-contaminated dust. Prior to commencing demolition and removal activities, the Subcontractor will clean building surfaces as described in Appendix B. After cleaning, URS will collect wipe samples for laboratory analysis of PCBs from select Site structures and features to assess whether cleaning activities had adequately reduced PCB concentrations, as described in Section 5.3.

4.3.3 Site Management

Equipment and project materials will be stored within a designated area and excavated materials may be stockpiled inside or outside of the building. Best management practices (BMPs) that will be incorporated include erosion and sediment control, good housekeeping, and post-construction practices, if necessary. During construction activities, checks by the URS field representative should be performed on a regular basis and after storm events and any identified issues recorded. Issues will be resolved with the Subcontractor performing the work.

Erosion and sediment controls will be installed along the edges of the construction areas, as needed, so that no disturbed surface soil is allowed to reach surface water drainages during construction activities. The greatest potential sources for migration of materials are:

- Sediment erosion during excavation and grading operations;

- Storm or surface water runoff during excavation and grading operations; and
- Wash water runoff during equipment decontamination activities.

Erosion controls may consist of, but are not limited to: construction fences, protection of existing vegetation, silt fences, and straw bale barriers. The Subcontractor will provide a Storm Water Management, Erosion, and Sediment Control Plan prior to commencing Stage II activities, as detailed in Appendix B.

4.3.4 Monitoring Well Abandonment

Prior to commencing demolition activities, monitoring wells identified within the demolition area will be properly abandoned to seal off potential conduits to the subsurface in accordance with Rule 16 of the SEO "Water Well Construction Rules" (2 CCR 402-2, SEO 2005). Three wells will be abandoned: BH-05, BH-06, and SMW-05. The saturated portion of the well's screen interval will be filled with sand and the unsaturated portion of the screened interval and the unperforated casing will be filled with bentonite to ground surface. Either bentonite-grout slurry or chips are acceptable; however, if chips are used, they must be wetted at regular lifts between 3 and 4 feet in thickness. The upper portion of the well casing and well vault will be removed during demolition activities and restored to approximately match surrounding conditions (concrete). URS will prepare and submit the well abandonment forms.

4.3.5 Demolition Activities

Demolition activities for the various buildings (as identified on Figure 3) are described below:

- Building A was an open metal storage shed that was removed by Hi-Tec in April 2014.
- Building C will be demolished prior to concrete removal and soil excavation to access the PCB contaminated concrete and soils.
- Building B will not be demolished. Because of the relatively limited removal area and the highly-vaulted ceilings within Building B, concrete and soil removal can occur within Building B without demolition of the building. The excavation depth will be limited to 3 feet bgs along the western edge of the building to avoid potential sloughing of landfill materials into the excavation.
- Building D will not be demolished. Although the anticipated removal areas extend between Buildings C and D, PCB-contaminated concrete and soil will be removed to the extent possible without compromising structural integrity.
- Building F will not be demolished. The anticipated removal area within Building F is shallow and limited in horizontal extent; therefore, demolition of Building F is believed to be unnecessary.

The building demolition process and additional considerations are further detailed in Appendix B.

4.3.6 Removal and Excavation of PCB-Contaminated Concrete and Soils

The anticipated concrete and soil removal areas were estimated from historical and Stage I results, as presented on Figure 4 and detailed in Appendix A.

Concrete slabs will be demolished and removed by sawcutting and then breaking them into manageable sizes with a hydraulic breaker or jack hammer. The concrete debris will be then be loaded into lined roll-offs or trailers as discussed in Section 4.5.

The soil excavation is planned to be well above the static water table (approximately 15 feet bgs), is likely limited to less than 8 feet bgs and dewatering is not anticipated. Should precipitation collect in the excavation and come into contact with contaminated soil, the water will be removed from the excavation and stored as IDW for testing and proper disposal, as discussed in Appendix B. Safety measures (e.g., shoring, benching, and/or sloping) will be implemented for excavation areas deeper than 4 feet per OSHA requirements, as further detailed in Appendix B. As contaminated soil is excavated, it will either be stockpiled within a vacant portion of the building out of the way of active excavation activities, to the extent practical, loaded to roll-offs, or directly loaded to trucks as outlined in Appendix B.

The objective of concrete removal and soil excavation is to remove materials with PCB concentrations above 25 or 100 mg/kg (for surface and subsurface soils, respectively) until groundwater is reached or until continuing excavation is deemed no longer safe for personnel or the building integrity. In general, excavation will continue until:

1. The general identified extents on Figure 4 have been removed;
2. The concrete slab of the press pit has been removed with over-excavation of at least 6-inches of the surrounding material; and
3. Material with significant visual staining has been removed.

Once the above three criteria have been met, URS will collect soil samples for laboratory analysis of PCBs from the base and sidewalls of the excavation to assess whether additional removal is necessary (sampling as described in Section 5). If concentrations are below 25 or 100 mg/kg (for surface and subsurface soils, respectively), then excavation will cease at the sampled location. However, if PCB concentrations exceed respective cleanup levels, excavation will continue until concentrations are confirmed below cleanup levels, groundwater is reached, and/or until the excavation is no longer deemed safe for personnel or building integrity.

Although no as-built reference drawings are available, field observations indicate that the main building's walls are constructed from vertical load bearing concrete double-tees. This type of building does not usually utilize the interior concrete slab on grade as part of the primary load-resisting system and should be able to be removed without affecting the building's structural integrity. What is likely a part of the primary load resisting system is the passive pressure of the subgrade (soil) on each side of the foundation footing for the double-tee walls at their base. Excavations at the base and foundation footings of the walls should be performed in a specific order and within limited extents to avoid building instability. The excavation should not expose more than three double-tee wall panels at a single time and approximately equal quantities of soil should be removed from each side of the wall to prevent an unbalanced loading condition. Soils should be excavated so that not more than a 2-foot differential in height is maintained. The extent of the excavation away from the face of the double-tee wall should be greater than 3 feet and sloped to follow OSHA regulations based on soil type. Additional excavation details are included in Appendix B.

A landfill is located directly west of the Site and precautions will be taken to avoid potential landfill material sloughing into the excavation by limiting the excavation depth beneath Building

B to 3 feet bgs. The horizontal and vertical extent of the excavation beneath portions of Buildings C, D, and F will be influenced by structural integrity concerns, described further in Appendix B.

4.3.7 Soil Stock Piling and Disposal

Excavated material will be temporarily staged in either stockpiles on a lined surface or in lined roll-offs. To the extent practical, soil stockpiles or roll-offs will be placed within the vacant building to reduce potential migration caused by precipitation and/or wind. The waste material will be shipped offsite to an approved disposal facility, as discussed in Subsection 4.5.

The haul trucks will be loaded on a lined loading area outside the exclusion zone (EZ) (see section 4.4.1 for work zone designations). When the trucks or roll-offs have reached their allowed capacity, the material will be covered with a tarp and secured for transportation. See Appendix C Transportation and Disposal Plan for additional information regarding the transportation and disposal of waste material.

4.3.8 Air Monitoring and Dust Suppression

High winds and Site operations can cause airborne dust hazards. Continuous monitoring with a MiniRam, or equivalent real-time dust monitor, will be conducted in the operators' and personnel's breathing zones during excavation activities. The monitor will be placed as close as practical to the point where the highest visible dust concentrations are identified. If Site operations generate visible dust or elevated dust monitoring levels, a water mist will be applied to working areas and stockpiles to help reduce dust generation. In addition, stockpiles may be located within Building B, to the extent practical, to reduce exposure to wind and precipitation. Additional details for dust control are included in Appendix B.

4.3.9 Post-Excavation Surveying

Following demolition and excavation activities, a Colorado-licensed surveyor will survey the excavation extent and final confirmation sample locations (those with PCB concentrations below cleanup levels). The difference between the pre- and post-excavation coordinates will be used to approximate the volume of in-place soil removed (before bulking), which will be confirmed by the weight tickets for the haul trucks at the time of disposal.

Surveyed locations will be determined to within 0.1 foot horizontal and 0.1 foot vertical accuracy in the Colorado State Plane Coordinate System. Vertical coordinates will be reported in feet amsl based on the National Geodetic Vertical Datum of 1929 (NGVD 29) as adjusted by the National Geodetic Survey in June 1991 and converted to the NGVD of 1927 (NGVD 27). Survey coordinates will also be reported with respect to the North American Datum of 1983 (NAD 83) and North American Vertical Datum of 1988 (NAVD 88).

4.3.10 Backfill and Compaction

The excavation will be backfilled with clean soil after PCB-contaminated materials have been removed. Backfill and compaction specifications are detailed in Appendix B. Clean backfill soil will be obtained from an off-site source. Compaction testing will be conducted and if a compaction test indicates the soil does not have the specified density and moisture content, the soil will be reworked and retested until specified density and moisture content are achieved.

4.3.11 Surface Restoration

Following backfill and compaction activities, the surface will be restored to similar surroundings. Concrete pavement areas north of the building will be restored with concrete and reinforced concrete will be placed inside the building to match the surrounding slab thickness and grade. The concrete shall have a minimum compressive strength of 4,000 psi unless otherwise specified. The concrete specifications are provided in Appendix B.

4.3.12 Post-Removal Action Wipe Sampling

Following the completion of concrete slab replacement and prior to demobilization, URS will collect wipe samples for laboratory analysis of PCBs from select Site structures and features near excavation activities to determine whether field activities generated PCB dust requiring cleaning. This post-removal action wipe sampling would pertain to areas where excavation activities occurred, namely Buildings B, D, and F, but would not be conducted in other portions of the building that were cordoned off with plastic sheeting (i.e., Buildings E, G, H, and I) or removed (Building C). Wipe samples would be collected as described in Section 5.3.

4.3.13 Equipment and Materials Decontamination

This subsection discusses the general practices and expectations for equipment and materials decontamination. The overall objective of decontamination is to prevent transporting and introducing contaminated materials to an area or media where it previously did not exist. To reduce personnel exposure during decontamination procedures, personnel shall wear appropriate personal protective equipment (PPE) in accordance with the HASP.

After completion of excavation activities, heavy equipment and tools will be decontaminated at a temporary wash down decontamination pad before being demobilized. Trucks that have been onsite will be observed and cleaned of mud or other potentially contaminated material prior to leaving the Site or entering a public road.

The removal of soil or mud may require a steam cleaner or high-pressure sprayer, wash down containment pad, and decontamination water disposal storage tank. Decontamination water collected from the containment pad will be pumped into the decontamination water disposal storage tank and disposed appropriately after analysis. Plastic liners or sheeting may be used as necessary to contain waste materials generated within the containment pad area. Decontamination procedures are described in Standard Operating Procedures (SOP) No. 8, Sampling Equipment Decontamination which is included in the Stage I Work Plan (URS 2014).

4.4 HEALTH AND SAFETY REQUIREMENTS

A Site-specific HASP is included in Appendix A of the Stage I Work Plan (URS 2014), which addresses both investigation and excavation activities. The HASP includes Safety Management Standards and Activity Hazard Analyses for project tasks described in this Work Plan. The HASP also provides information on safety monitoring, PPE, and emergency contract information. The HASP will be referenced by personnel conducting the investigation and removal action activities.

4.4.1 General Work Zone Safety

During the field activities, the work area will be marked with high-visibility barriers, cones, and/or tape/flagging to protect workers. The work area will be enclosed with existing and temporary fencing to restrict access to bystanders. The gates will be locked at the end of the work day to preclude trespassers and potential vandalism.

URS will hold an initial safety meeting with Hi-Tec personnel prior to commencing work and will communicate with Site personnel to inform them of activities and possible impacts to Hi-Tec operations at the Site. URS will hold daily safety meetings with onsite URS subcontractors every morning that field activities are conducted onsite.

4.4.2 Contamination-Related Work Zones

The HASP describes the monitoring program that will be followed to assess the presence of PCB-contaminated dust within worker breathing zones. An asbestos building evaluation was conducted on February 24, 2014 for information prior to potential demolition and concluded that asbestos containing material (ACM) is not present within the demolition and removal areas presented on Figure 4 (Appendix A). If field monitoring using real-time air monitoring instruments indicates that the air quality action levels have been exceeded, requiring the use of chemical protective equipment, work zones will be established as described below.

- The Exclusion Zone (EZ) – the extent of this area will be dictated by the active excavation areas and soil stockpile areas. This zone is where potentially hazardous contaminants and physical hazards to the workers will be contained. Appropriate PPE, as described in the HASP, will be required in this area. The size of the EZ may be altered to accommodate site conditions and to contain contaminants.
- The Contaminant Reduction Zone (CRZ) – a corridor leading from the EZ will be defined; it will lead from the work area to a break area. All decontamination activities will occur in the CRZ. A waste container will be placed at the end of the corridor between the CRZ and EZ so that contaminated disposable equipment can be placed inside and covered. Surface/soil contamination in this area will be controlled using plastic sheeting. No one will be permitted into the CRZ or EZ unless he/she is in full compliance with the HASP requirements.
- The Support Zone (SZ) – the outermost part of the Site will be defined as the SZ for each field activity. Support equipment is located in this uncontaminated or clean area. Typical work clothes are appropriate within this zone. The location of this zone depends on factors such as accessibility, wind direction (upwind of work area), and resources such as roads, shelter, and utilities.

EZ and CRZ work zones were not established during Stage I activities as dust levels were properly managed and did not necessitate the zone designations. High-visibility barriers/fences, cones, and/or tape/flagging will be used to delineate work zones. The barriers will be set up to provide sufficient maneuvering space for personnel and equipment and to confine the contaminants to the EZ/CRZ. A short piece of barricade tape can be affixed to a secure upright fixture to monitor wind direction throughout the day.

An entry will be provided during Stage II implementation for haul trucks that are on Site to transport excavated soil and demolition material and for the mobilization and demobilization of

heavy equipment. The personnel decontamination station will be established at this point if formal decontamination procedures are required. Entry and exit from the work area will be made at these openings to control potential sources of contamination and leave contaminated soil and debris in the work area with the exception of contaminated material that is loaded into haul trucks for offsite disposal. Approximate EZ and CRZ areas are shown on Figure 4 and will be modified as necessary during the removal action.

4.4.3 Summary of Potential Hazards

The HASP addresses various Site-related hazards and preventive or mitigation measures. In addition to the Site chemical hazards, primarily PCB-contaminated soils, the following physical hazards may be present during work implementation:

- Heat stress and cold stress;
- Noise from the operation of Site equipment;
- Slips, trips, and falls, including falls from same level or falls from height (e.g., aerial lift);
- Back injuries and muscle strains resulting from improper lifting or use of awkward body positions during other work activities;
- Being crushed, cut by, struck by, caught in or between moving equipment/vehicles between equipment and building foundations/walls, or by hand/power tools;
- Excavation hazards, such as engulfment;
- Heavy equipment;
- Truck loading and unloading;
- Inhalation hazards from dust and operating equipment inside a building;
- Severe weather, including high winds and lightning;
- Biological hazards, including small biting animals, snakes/other reptiles, biting/stinging insects or spiders, and vector borne diseases; and
- Fatigue.

4.5 TRANSPORTATION AND DISPOSAL

Excavated material will be loaded into either lined roll-off bins or lined trucks, manifested, and transported to a designated disposal facility. Appendix C contains the Transportation and Disposal Plan for the PCB removal action.

Stockpiled material will be stored in a manner to eliminate the need for disposal trucks to enter the EZ or CRZ. Haul truck loading areas will be lined with plastic sheeting (e.g., visqueen) and routinely cleaned to keep contaminated material off of truck tires. Each haul truck will be properly placarded and checked prior to leaving the containment pad for proper containerization and cleanliness. If excess residual soil is observed on a truck, the truck will be decontaminated before it leaves the Site. Once trucks leave the Site, they will follow the prescribed route to the designated disposal facility.

Prior to truck mobilization offsite, the trailer bed will be covered with tarps or plastic sheeting (or similar) and secured to prevent contaminated soils from falling out or being blown out of the haul truck. Manifests will be completed onsite after the soil has been loaded into the truck. Trucks will leave the Site by following the designated haul route to the respective disposal facility. See Appendix C for more detail.

4.5.1 Disposal Facilities

As described in Appendix C, waste characterization soil samples from the Stage I field investigation were analyzed for PCBs, and Toxicity Characteristic Leaching Procedure (TCLP) for Resource Conservation and Recovery Act (RCRA) 8 Metals and volatile organic compounds (VOCs). Based on the Stage I field investigation data, the impacted soil will be classified as PCB-contaminated but non-hazardous. Additional waste characterization samples will be collected if requested by the disposal contractor (Clean Harbors). The following waste disposal facility has been initially identified for wastes and debris encountered or generated during excavation activities:

- Material that requires disposal as a result of the removal action (building demolition debris, concrete, soil, and PPE) will be sent to the Clean Harbors Grassy Mountain Landfill Facility located approximately 3 miles east and 7 miles north of Knolls at Exit 41 off I-80 in Grantsville, Utah with an EPA ID number of UTD991301748.
- Water (decontamination or as a result of dewatering the excavation) will be sent to the Clean Harbors Aragonite Incineration Facility located at 11600 North Aptus Road, Dugway, Utah with an EPA ID number of UTD981552177.

4.5.2 Notifications and Agency Coordination

Before any volume of waste material exceeding a total volume of 10 cubic yards (yd^3) departs the Site for offsite disposal, TDCC will provide written notification of the shipment to EPA's On-Scene Coordinator (OSC) and to the appropriate state environmental official in the receiving state in accordance with the Settlement Agreement. This notification will include evidence that TDCC has inquired of the appropriate regulatory authority regarding the recipient facility's present compliance with all applicable environmental permits and/or interim status requirements, and the results of such inquiry.

The written notification will include the following additional information where available:

- The name and location of the facility to which the Waste Material are to be shipped
- The type and quantity of the Waste Material to be shipped
- The expected schedule for the shipment of the Waste Material
- The method of transportation

TDCC will notify the corresponding official in the receiving state of major changes in the shipment plan, such as a decision to ship the waste material to another facility within the same state, or to a facility in another state.

4.6 DEMOBILIZATION

Temporary facilities including staging and laydown areas, fencing, and temporary utilities will be removed from the Site upon completion of the field activities. The work area will be observed by the field representative to check that project-related equipment, trash, and debris have been collected and properly disposed. Permanent utility terminations, if any, will be coordinated with the property owner, and will comply with utility requirements.

Demobilization will also include the removal of equipment, tools, and supplies and evacuation of the temporary office space. Temporary fencing, traffic control devices, signs, storage containers, portable toilets, and refuse containers will be removed from the Site. Surplus materials, waste materials, and debris will be removed and returned to vendors, recycled, and/or disposed of, and work areas will be cleaned and returned to their original condition. Final demobilization will include removal of Site construction fencing, and decontamination pads.

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This section describes the confirmation sampling procedure for collecting concrete, soil, and wipe samples, along with references to SOPs for the specific activities.

5.1 CONCRETE CONFIRMATION SAMPLING

After concrete has been sawcut as shown on Figure 4, confirmation concrete samples will be collected from concrete pieces broken along the sawcut edge to confirm that PCB concentrations are less than 25 ppm in areas where historic and Stage I results indicated PCB concentrations were above 25 ppm in concrete. The areas where historic and Stage I PCB concentrations are below 25 ppm, concrete samples will not be collected.

The concrete will be broken into manageable sizes for loading and URS will collect a sample of the concrete for laboratory analysis. A concrete core or piece will submitted to a fixed laboratory where it will be crushed into a fine powder and analyzed for PCBs.

Anticipated concrete confirmation sample locations are presented on Figure 4. These locations will bound the contaminated concrete identified in the Stage I and historic field activities. Final sampling locations will be identified and marked using paint, a stake, lath, or flag, which will be surveyed prior to backfilling activities (see Subsection 4.3.8).

5.2 SOIL CONFIRMATION SAMPLING

Once the anticipated soil removal extent has been excavated and visually unstained materials are encountered, URS will collect confirmation soil samples along the excavation sidewalls and floor for laboratory analysis of PCBs. Soil samples will be collected based on field observations and the understanding of contaminant release and migration mechanisms (e.g., beneath and adjacent to the press pit construction seam joints). In general, soil samples will be collected on 10-foot spacing at about the center depth of the excavation sidewalls, and from the excavation bottom at a frequency of about one sample for every 10-by 10-foot square grid area.

Grab soil samples will be collected with hand tools by temporarily ceasing excavation activities within the vicinity and physically entering the excavation (if deemed safe). However, once the excavation base is deeper than 4 feet bgs, samples will be collected as grab samples from the bucket of an excavator or backhoe. Grab sample material will be homogenized in a stainless steel bowl before filling sample containers, as described in SOP No. 3.0 in Appendix B of the Stage I Work Plan (URS 2014). Final sampling locations will be identified and marked using paint, stakes, lath, or flags, which will be surveyed prior to backfilling activities (see Subsection 4.3.8). Intermediate sampling locations will be approximately located based on field conditions (e.g., use of a measuring wheel or tape relative to the edges of buildings or features with known survey coordinates).

5.3 WIPE CONFIRMATION SAMPLING

URS will collect confirmation wipe samples at two times during the removal action; first following building cleaning prior to commencing demolition activities, and again at the conclusion of restoration activities prior to demobilization. Wipe samples will be collected over a standard wipe area of 100 square centimeters (cm^2), as described in SOP 5.0 in Appendix B of the Stage I Work Plan (URS 2014).

The first wipe sampling effort will include collecting at least one wipe sample each from the floor, wall, and ceiling of Buildings B through I, for a minimum of 24 investigation samples (i.e., 3 samples per building for 8 buildings) with at least two field duplicates, where quality control (QC) samples would be collected at a 5-percent frequency (e.g., 1 per 20).

Wipe samples will be collected from areas with visible staining and/or considerable dust prior to cleaning activities. As the building cleaning effort is anticipated to take several days, wipe samples can be collected immediately from surfaces following their cleaning and submitted for analysis, while building cleaning continues in other portions of the building. Therefore, results may be available from wipe samples collected from the initially cleaned surfaces prior to concluding building cleaning of the last portions of the building.

The second wipe sampling effort would include collecting at least one wipe sample each from the floor, wall, and ceiling of Buildings B, D, and F, for a minimum of 9 investigation samples (i.e., 3 samples per building for 3 buildings) with at least one field duplicate. Wipe samples will be collected approximately adjacent to the wipe sample locations collected following building cleaning.

5.4 SAMPLE LABELING

Sample locations will be documented on a sketch drawing during the time of sampling and will be labeled in a manner associated with their origin as follows:

Sample Type - Sample Number - Sample Location - Sample Depth/Height

The sample type will denote the media and type of sample as follows:

- soil from the excavation (EXC);
- soil from a stockpile (SS) - if soil is loaded directly into roll-offs or haul trucks, the nomenclature "SS" will still be used;
- concrete (CON);
- other debris (DEB), such as demolished building materials or insulation; or
- a wipe sample (WP).

The sample number will be the sequential number for the type of sample, regardless of the excavation footprint or which soil stockpile is sampled. The sample location for an excavation sample will denote from where it was taken as follows:

- soil samples taken from the excavation will denote the location by whether it was from the floor (F) or sidewall (W).
- soil samples taken from soil stockpiles or roll-offs will denote the pile/roll-off number (numeric) from which it was taken.
- concrete and debris samples will be numbered sequentially and relevant sample identification information will be recorded on the field form, however, no other information will be included in the name for location. For example, the third concrete and debris samples would be labeled as "CON-3" and "DEB-3," respectively.

- Wipe samples would denote the building letter and whether it was taken from the floor (F), ceiling (C), or wall (W).

The sample depth or height will denote the approximate depth or height from which the sample was taken relative to ground surface, as follows:

- Soil samples taken from side walls or the excavation floor will be identified by the depth below the ground surface (or slab).
- Sample depth will not pertain to soil stockpile samples.
- Concrete samples of the typical slab (i.e., 6 to 8 inches in thickness) would be assigned a depth of zero (0), whereas concrete samples from foundation and pit features would be assigned their respective depths, which is anticipated to be as deep as 5 feet bgs in places based on Stage I results.
- Debris samples would be assigned their respective height prior to their removal. For example, a sample of building materials mid-wall may be 5 feet, whereas spray on insulation from Buildings B or F could be as high as 15 feet above ground surface.
- Wipe sample height will be the distance above ground (or the slab) from where it was collected, where floor samples are at zero (0), most wall samples would be between 2 and 8 feet above ground surface, and ceiling samples would likely be between 10 and 14 feet above ground surface.

Several examples of complete sample nomenclature include:

- The first soil sample collected from the excavation from the base at 8 feet and the second from the middle of the sidewall would be "EXC-1-F-8" and "EXC-2-W-4", respectively.
- The first and second soil sample collected from soil stockpiles A and C would be labeled "SS-1-A" and "SS-2-C," respectively.
- The first and second concrete samples taken from depths of 6-inches and 3 feet would be labeled as "CON-1-0" and "CON-2-3", respectively.
- The first and second debris samples taken from building materials at 4 feet above ground surface and insulation at 10 feet above ground surface would be labeled "DEB-1-4" and "DEB-2-10", respectively.
- The first and second wipe samples taken from the floor of Building D and from the ceiling of Building E (at 14 feet above ground surface), they would be labeled "WP-1-D-F-0" and "WP-2-E-C-14", respectively.

5.5 ANALYTICAL TESTING

Soil samples, concrete samples, debris samples, and wipe samples will be collected and submitted to a fixed laboratory for PCB analysis in accordance with the QAPP, included as Appendix C of the Stage I Work Plan (URS 2014). Varying analysis turnaround times (TAT) will be requested based on the objective from the sample submitted. In general, the following TAT rationale is presented for various samples:

- Concrete samples will be collected immediately following sawcutting activities and submitted for a one-week TAT, as soil removal activities are anticipated to last several days and results will not be required until soil excavation activities are complete prior to backfilling.
- Soil samples collected from the floor or sidewalls of excavations will be submitted for a 24-hour TAT to enable timely decisions of whether to continue excavating in a region.
- Debris samples (if collected) would be submitted for a one-week TAT, as their collection can likely occur a few weeks in advance of needing to determine their removal or disposal.
- The initial wipe samples from the first collection effort following building cleaning will be submitted for a 24-hour TAT to assess the effectiveness of the building cleaning method, whereas subsequent wipe samples will be submitted under a longer TAT. Wipe samples from the second effort, following completion of the removal action, will be submitted under an accelerated TAT (i.e., 24-hour or 3-day) to obtain timely data to determine whether the Subcontractor can demobilize.

This Section describes the recordkeeping and reporting anticipated for the project. Currently, URS submits monthly memorandums to EPA on behalf of TDCC that summarize the status and progress of the project. This is anticipated to continue through the conclusion of the project.

6.1 GENERAL FIELD DOCUMENTATION

A URS field representative will document field observations during the building demolition, concrete, and soil removal activities. The field notes will be prepared daily and will contain pertinent observations about the work such as general Site conditions, daily work performed, personnel and equipment on Site, excavation dimensions, number of truckloads or roll-off containers filled, sampling and monitoring activities, unusual conditions encountered, and other field observations related to the Site. The field notes also will include records of Site meetings.

Field observations and data will be recorded with waterproof ink in a permanently bound weatherproof field logbook with consecutively numbered pages, and/or on field data sheets. The Site conditions, as well as the soil removal action activities, will be photographed before, during, and after investigation and removal activities. Select photographs will be included in the Removal Action Report (see Subsection 6.4). A list of detailed field documentation items is included in SOP No. 10.0, and sampling protocol and nomenclature is described in SOP No. 10.0 (included in Appendix B to URS 2014). Health and safety meetings and actions will be documented in accordance with the HASP (included as Appendix A to URS 2014). Detailed logs of each truck loaded or unloaded at the Site will be retained, as described in Subsection 6.2. Chain-of-custody records will be maintained for collected samples, as indicated in the SOP No. 10.0.

6.2 WASTE TRACKING

Any contractor transporting nonhazardous wastes shall have a commercial transportation license. When transporting hazardous wastes, the transporter shall have an EPA Identification Number and shall comply with federal, state, and local transportation requirements. The following information will be recorded and tracked for each load of waste material transported offsite.

- Date and time;
- Weight/volume of waste/material;
- Trucking company and driver; and
- Vehicle identification.

Weighing loads on a certified scale will be the transporter's responsibility, where weight measurements shall be obtained for each full and empty container. Disposal quantities shall be based on the difference of weight measurements between the full and empty container and these weights shall be recorded on the manifests.

Field personnel will monitor the haul trucks leaving the Site to transport material to the waste disposal facility. The following transportation documents must be carried with the driver when transporting the waste:

- Waste manifest or proper shipping document identifying the shipment;
- Maps and complete instructions describing the route to be traveled; and

- Special instructions, including emergency procedures and transporter contacts.

Prior to transporting the excavated material offsite, an authorized TDCC representative or agent will sign each waste manifest. The waste hauler will then sign the manifest and distribute one signed copy to the URS field representative.

URS will maintain a copy of the waste manifest or shipping document for each truckload on Site until completion of the removal action. The shipping document will include the following information:

- Name and address of waste generator, waste transporter, and disposal facility;
- Description of the waste (including analytical results representing the waste); and
- Quantity of the waste shipped.

URS will complete the following actions prior to shipping waste offsite:

- Review manifests;
- Sign and date each manifest certification by hand;
- Obtain the transporter's handwritten signature and acceptance date on the manifest and
- Retain one copy, giving the remaining manifest copies to the transporter.

Requirements and considerations for the Subcontractor regarding waste transportation and disposal are detailed in Appendix C.

6.3 REMEDY COMPLETE ACHEIVEMENT

The RAO will be achieved through the removal of materials at the surface and subsurface with PCB concentrations greater than 25 and 100 mg/kg, respectively, as documented by laboratory analytical results from confirmation samples. In circumstances where PCB-contaminated materials cannot be removed, they will be capped with concrete or asphalt overlying a 12-inch cover of clean soil (i.e., with PCB concentrations less than 25 mg/kg) to limit exposure and further reduce the possibility of migration and transport. Circumstances where PCB-contaminated materials would remain in place include if contamination (1) extends into the saturated zone; (2) extends deeper than 3 feet bgs beneath Building B along its western edge; (3) cannot be safely removed from beneath Building D without compromising structural integrity; and/or (4) exists on or within the building foundation.

If contamination remains in place, additional post-removal administrative controls beyond a cap may be required, such as institutional controls governing future land use or soil disturbance.

6.4 REMOVAL ACTION COMPLETION REPORT

Within 60 days after completion of the work listed in the Settlement Agreement, URS will prepare a Removal Action Completion Report summarizing the following field activities and results:

- Stage II field activities completed including excavation, loading, dust control, transportation, disposal, confirmation sampling, laboratory analyses, backfilling, and site restoration.

- Volumes of debris hauled offsite and soils excavated and disposed.
- Copies of the chain-of-custody forms, laboratory reports, field instrument calibration verifications, QA/QC checks, geotechnical and concrete test reports, waste transportation manifests, waste disposal forms, field notes, safety meeting records, and photographs.

Assuming contamination can be adequately removed to achieve the RAOs, the report will conclude with a request for a Remedial Action Completion determination for the Site.

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A general project schedule for the execution of this Work Plan is provided in the monthly progress reports. The schedule includes tasks to be performed prior to, during, and following the field portion of the removal action. The schedule also documents dates and durations for former tasks already completed. The schedule will be updated as needed and agreed upon by TDCC and the EPA point of contact.

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SEM. 2012. Subsurface Investigation, 3555 Moline Street, Aurora, Colorado, for Mr. David B. Goodell and Mr. Jim Gruber, President Gruber Commercial Real Estate Services. January.

Sundance Environmental Consultants, Inc. 2012. Subsurface Investigation (Draft), for Mr. David B. Goodell and Mr. Jim Gruber (President of Gruber Commercial Real Estate Services). February.

TDCC. 1999. Letter from Ben Baker of TDCC to Barbara O'Grady at CDPHE. "Waste Determination- Dow Chemical Magnesium Fabricated Products, Facility, Aurora, Colorado." January 25.

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URS Corporation (URS). 2013. Draft Investigation and Removal Action Work Plan, Smith Road and Moline Street Site, Aurora, Colorado. October 28.

URS. 2014. Revised Draft Investigation and Removal Action Work Plan, Moline Street PCB Site, Aurora, Colorado. February 28.

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Table 1
Summary of Applicable or Relevant and Appropriate Requirements

Moline Street PCB Site
Aurora, Colorado 80013

Standard, Requirement, Criteria, or Limitation	Citation	Description	Applicable or Relevant and Appropriate	Comments
FEDERAL				
Toxic Substances Control Act, PCB Spill Cleanup Policy	52 FR 10688 April 2,1987	Regulates hazardous materials from manufacture to disposal	To be considered	PCB Spill Cleanup policy considered in development of clean up levels. Clean up standards are applicable and will be applied, to the extent practicable and in consideration of the exigencies. PCB contaminated waste generated during the removal action will be disposed off-site consistent with RCRA and TSCA regulations.
STATE				
Colorado Hazardous Waste Regulations	6 CCR 1007-3, pursuant to CRS § 25-15-101 et seq.	Regulates generation storage and disposal of hazardous waste, and the siting, construction, operation, and maintenance of hazardous waste disposal facilities	Applicable	PCB contaminated waste generated during the removal action will be disposed off-site consistent with RCRA and TSCA regulations.
Colorado Fugitive Dust Control Plan/Opacity Regulation No. 1	5 CCR 1001-3, pursuant to CRD 25-7-101 et seq.	Regulates fugitive emissions generated during construction	Relevant and appropriate	Contemplated actions would not trigger permit requirements; however dust control will be required.

Table 1
Summary of Applicable or Relevant and Appropriate Requirements

Moline Street PCB Site
Aurora, Colorado 80013

Standard, Requirement, Criteria, or Limitation	Citation	Description	Applicable or Relevant and Appropriate	Comments
Colorado Environmental Covenants Law	CRS §§ 25-15-317 to 327	Requires environmental covenants (ECs) or notices of environmental use restrictions (RNs) whenever residual contamination not safe for all uses is left in place or an engineered feature or structure that requires monitoring, maintenance, or operation is included in the remedy.	Applicable (Substantive Provisions)	Covenant may restrict land use and/or groundwater use.
Colorado Noise Abatement Statute	CRS § 25-12-101, et seq.	Establishes standards for controlling noise	Applicable	Site is in a commercial or industrial area.

Note: these regulations are summarized from what is presented in the Administrative Settlement Agreement and Order on Consent for the Site, which became effective January 30, 2014 under the Comprehensive Environmental Response, Compensation, and Liability Act (reference CERCLA Docket No. CERCLA 08 2014 0002).

EXPLANATION

Site Boundary

Map Projection:
State Plane Feet, Colorado Central Zone, NAD83.
Basemap Source:
National Geographic Society, i-cubed (2013)

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1 inch = 2,000 feet

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URS

Figure 1 LOCATION MAP

MOLINE STREET PCB SITE
AURORA, COLORADO

PROJECT NO.	DRAWING NO.	DATE
41569671	Fig1_Site_Location.mxd	2/26/14

EXPLANATION

- Site Boundary
- Former Press
- Press Pit
- Unidentified Feature
- Surveyed Feature
- Fence

Map Projection:
State Plane Feet, Colorado Central Zone, NAD83.
Aerial Photo Basemap Source:
Copyright 2013 Esri, DeLorme, NAVTEQ, TomTom

100 0 100 Feet

1 inch = 100 feet

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W E
S

URS

Figure 2 SITE VICINITY

MOLINE STREET PCB SITE
AURORA, COLORADO

PROJECT NO.	DRAWING NO.	DATE
41569671	Fig2_Site_Vicinity.mxd	4/28/14